

ABSTRACT

The invention relates to the rocket and space engineering, and can find use in development of reusable rocket complexes for placing various space objects in orbit.

A set of rocket boosters (2, 3, 4, 6, 7) for operating launch vehicles (1, 5) comprises expendable (2, 6) and nonexpendable (3, 4, 7) rocket boosters. A part of equipment of the expendable booster (2) and a part of equipment of the nonexpendable boosters (3, 4, 7) are replaceably mounted on said boosters and are capable to be interchangeable. A part of interchangeable equipment is made interconnected to another part of said equipment by at least a part of communications and structurally united into a module (29, 30) by a housing of a compartment (8, 9, 10, 11) of boosters (2, 3, 4, 7).

A method of operating launch vehicles (1, 5) comprises the steps of one-time using an expendable rocket booster (2) within the launch vehicle (1), and reusing nonexpendable rocket boosters (3, 4, 7) within the launch vehicles (1, 5). There are the steps of periodical replacing a serviceable portion (15, 29, 30) of the nonexpendable rocket booster (3, 4, 7) for a new one before repeated uses of the nonexpendable rocket booster, and mounting the replaced part onto the expendable rocket booster (2).